

REMARKS/ARGUMENTS

Claims 1-24, 29, 33-34, 44, 46 and 48-66 are cancelled.

Each amended claim is supported, for example, at the correspondingly numbered previously presented claim. Additionally, features of now cancelled Claims 29 and 33 are incorporated into present Claim 25.

No new matter is added.

The written description rejection of Claims 25-33, 35-39, 43 and 45 is traversed. The Office asserts that “[d]escription is not found in the specification of producing the claimed composite containing metal particles of only sub-nanometer size” (see Official Action page 3). The Office’s assertion is wrong.

Present independent Claim 25 is drawn to a process for producing a platinum particle nucleic acid composite comprising platinum particles. A feature of Claim 25 is that the platinum particles in the platinum particle nucleic acid composite produced by the claimed process are sub-nanometer in size.

Specification page 15, lines 6-7, described in part that “Figure 3 shows the presence of continuous metal coatings overlaying the elongated segments of DNA” and that “[t]he total thickness of these structures is between 3 and 6 nm in most places...” The Office, seizing upon this description, asserts that “the specification (page 15, line 7) discloses a total thickness between 3 nm and 6 nm” and that “since DNA is 2 nm thick, the metal particles will be 1-4 nm in size” (see Official Action page 3). The Office’s reasoning must fail based on the teachings of the specification taken as a whole.

Claim 25 is contains sub-nanometer platinum particles. The disclosure, *supra*, for Figure 3 (and Figure 4) relates to Pt-DNA after treatment with GoldEnhance® (see specification page 14, lines 3-5). GoldEnhance® treatment enlarges sub-nanometer sized

platinum particles present in the pre-GoldEnhance® treated platinum particle nucleic acid composite. This GoldEnhance® mediated enlargement of pre-treatment sub-nanomolar platinum particles to post-GoldEnhance® treatment non-sub-nanomolar metal particles allows visualization of the post-treatment particles by Atomic Force Microscopy (AFM). The limits of AFM are such that platinum particles in the sub-nanometer range cannot be visualized.

Specification Figures 2 and 5 show Pt-DNA produced according to the process of present Claim 25. The DNA visible in the figures are 2 nm (see the legend on the right hand side of the figures). Because DNA is 2 nm thick, the platinum particles deposited on the DNA must be smaller than 1 nm, since otherwise, they would be visible in the AFM picture. That the sub-nanometer platinum particles are deposited/present in Figures 2 and 5 is demonstrated by GoldEnhance® treatment as shown in Figures 3 and 4 (GoldEnhance® enlarges the sub-nanometer platinum particles present on the DNA, thereby making the resulting treated particles AFM visible) versus the control experiment where non-platinated DNA was treated with GoldEnhance®, which did not lead to gold deposition along the unmodified DNA (see specification Figures 13-14, and Example 7).

Describing these results, specification page 4, lines 24-27, explicitly states that “the sub-nanometer size of the platinum particles in the nanoparticle/DNA composite produced according to the present invention are stable in time....” (emphasis added).

Accordingly, explicit written description for sub-nanometer sized platinum particles is present, and this description is supported by data present in the specification, as described above.

The written description rejection must be withdrawn.

The obviousness rejection of Claims 25-31, 33, 35-39, 43 and 45 as being unpatentable in view of Pompe, Singh, and Richter is traversed because the cited references do not describe, or suggest, and are not enabled for, all of the features of present Claim 25. Specification page 2, lines 19-23, describes that Pompe's particles have a diameter of 3-5 nm. 3-5 nm is not sub-nanometer. Richter, at page 509, right column, first paragraph, describes “[t]he initially grown metal clusters (3-5 nm) ....” Thus, Pompe and Richter describe nanometer sized particles. Pompe and Richter, alone or in combination, fail to describe, or suggest, the sub-nanometer platinum particles of Claim 25. The disclosure of Singh does not cure the deficiencies of Pompe and Richter. Because the cited references do not describe, or suggest, and are not enabled for, all of the features of present Claim 25, the obviousness rejection must be withdrawn.

The obviousness rejection of Claim 32 as being unpatentable in view of Pompe, Singh, Richter and Newsman is traversed. Present Claim 32 depends from present Claim 25. As described above, Pompe, Richter, and Singh fail to describe, suggest, and are not enabled for the sub-nanometer platinum particles of Claim 25. Newman does not cure the deficiency of Pompe, Richter, and Singh. The obviousness rejection must be withdrawn.

The obviousness-type double patenting rejection of Claims 25-33, 35-39, 43 and 45 as being unpatentable in view of Claims 1-32 of U.S. 6,884,587 ('587) in view of Singh is traversed. The claims of the '587 patent require gold (Au) particles. Present Claim 25 and the claims depending therefrom employ platinum (Pt) particles. The Office has provided no motivation or suggestion as to why one of ordinary skill in the art would be motivated to replace the gold particles of the '587 patent with the platinum particles employed in the method of present Claim 25. Withdrawal of the obviousness type double patenting rejection is requested.

Applicants submit the present application is in condition for allowance. Early notification to this effect is earnestly solicited.

Respectfully submitted,

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